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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,197	10/24/2003	Mark T. Devlin	0013.0051	2333

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EXAMINER
SANDERS, KRIELLION ANTIONETTE

ART UNIT	PAPER NUMBER
1796	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/693,197	DEVLIN ET AL.	
	Examiner	Art Unit	
	Kriellion A. Sanders	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5-14,16 and 18-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5-14,16 and 18-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's invention pertains to an additive concentrate, comprising:

a) an extreme pressure compound comprising a sulfur-containing compound;

b) an antiwear compound comprising a phosphorus-containing compound;

c) a friction modifying compound comprising an alkylene amine compound comprising an N-aliphatic hydrocarbyl-substituted trimethylenediamine,

wherein the N-aliphatic hydrocarbyl-substituent comprises at least one straight chain aliphatic hydrocarbyl group free of acetylenic unsaturation and having about 14 to about 20 carbon atoms;

d) a dispersant compound containing basic nitrogen,

wherein the dispersant compound comprises a polyolefin amide compound; and

e) a diluent oil,

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5-16 and 18-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallace et al, US Patent No. 5492638 in view of Srinivasan US Pat Publication Number 2002/0151443 and Emert et al, US Patent No. 6,030,930.

Wallace et al discloses an oil composition that is used to improve the gearshift performance in a synchromesh transmission. The oil composition comprises:

- Mineral or synthetic ester oil
- Ashless dispersant
- Sulphur containing anti-wear or extreme pressure agent
- Phosphorus and nitrogen containing anti-wear or extreme pressure agent
- Overbased alkali or alkaline based carboxylate, sulphonate, or sulphurized phenate

See claims 1-3.

- The mineral or synthetic ester oil corresponds to applicant's component e.
- The ashless dispersant corresponds to applicant's component d.
- The sulphur containing anti-wear or extreme pressure agent corresponds to applicant's component a.
- The phosphorus and nitrogen containing anti-wear or extreme pressure agent corresponds to applicant's component b.
- The overbased alkali or alkaline based carboxylate, sulphonate, or sulphurized phenate corresponds to applicant's component a.

The patent does not teach applicant's friction modifying compound, c. See col. 1, line 30 through col. 9, line 52.

Srinivasan et al also discloses oil compositions useful for lubricating gears. The compositions include among other things, a sulfur containing antiwear or extreme pressure agent, a phosphorus containing antiwear or extreme pressure agent, and an ashless dispersant. The patent documents these components to be conventional additives for lubricating compositions. See the abstract and claim 1.

The published invention to Srinivasan relates to the improvement of anti-wear and extreme pressure performance and stability of an automatic transmission fluid by the inclusion of sulfurized fats, sulfurized fatty acids, sulfurized fatty acid esters and/or mixtures thereof, and an ashless dialkyl thiadiazole. Other optional components, e.g. friction modifiers, antioxidants, dispersants, and viscosity index improvers, allow the fully formulated transmission fluid composition to provide improved antiwear and extreme pressure performance when incorporated into an automatic transmission. Although the Components above and in the below list are described occasionally with reference to a function, that function may be one of other functions served by the same component and should not be construed as a mandatory limiting function.

Component (A) of the patented invention is ashless dialkyl thiadiazole.

Component (B) comprises a sulfur source selected from sulfurized fats, e.g., sulfurized fatty acid esters. These components may also have functions as lubricity agents and as extreme pressure (EP) agents as well. Various products are available as high sulfur donors, such as BASE 101 Sulfurized Lard oil.

Ashless dispersants are also utilized in the invention . Alkenyl succinic acid esters and diesters of polyhydric alcohols containing 2-20 carbon atoms and 2-6 hydroxyl groups can be used in forming phosphorus-containing ashless dispersants. In a preferred embodiment of the present invention, an ashless dispersant having a nitrogen to phosphorus mass ratio between about 3:1 and about 10:1.

The compositions of the patented invention may include one or more antioxidants, for example, one or more phenolic antioxidants, hindered phenolic antioxidants, additional sulfurized olefins, aromatic amine antioxidants, secondary aromatic amine antioxidants,

sulfurized phenolic antioxidants, oil-soluble copper compounds, phosphorus-containing antioxidants (e.g. organic phosphites), and mixtures thereof.

A particularly preferred friction modifier system is composed of a combination of at least one N-aliphatic hydrocarbyl-substituted diethanol amine and at least one N-aliphatic hydrocarbyl-substituted trimethylene diamine in which the N-aliphatic hydrocarbyl-substituent is at least one straight chain aliphatic hydrocarbyl group free of acetylenic unsaturation and having in the range of about 14 to about 20 carbon atoms. See paragraphs 0014 –0095, particularly 0075.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to include the trimethylene diamine friction modifying compounds of Srinivasan in the conventional lubricant compositions of Wallace et al with the expectation of achieving improved antioxidant, anti-wear and extreme pressure properties. The ordinary practitioner of this art would have looked to Wallace et al and Srinivasan to determine optimal ratios of additives. The weight percentages given do not include diluents and take into account that some components have dual functions and should be adjusted accordingly. The resulting compositions would necessarily result in the base oil having a viscosity of SAE 50W to SAE 250, because the components are essentially the same as applicant's claimed components.

Emert et al discloses to oil soluble copolymers derived from ethylene and 1-butene which form solutions in mineral oil free of polymer aggregates, as determined by light scattering measurements. The copolymers are used to form lubricating oil additives, particularly dispersants, by the functionalization and derivatization of these copolymers. The lubricating oils

have enhanced performance (e.g., improved dispersancy and pour point) in lubricating oil compositions, attributable in part to the combination of properties characterizing the copolymers.

While the functionalized polymers themselves possess some dispersant characteristics and can be used as dispersant additives in lubricants and fuels, best results are achieved when at least about 30, preferably, at least about 50, most preferably 100% of the functional groups are derivatized. Furthermore, it is not necessary that all the functional groups of the functionalized polymer be derivatized to the same product or even the same type of product. The functionalized polymer may be first reacted with one or more alcohols to convert a portion of the acid functional groups to ester groups and thereafter this ester product can be reacted with one or more amines and/or one or more metal reactants to convert all or a portion of the remaining carboxyl functions to a derivatized amine groups such as amides, imides, amidines, amine salt groups, and the like or metal salt groups.

Useful amine compounds for derivatizing functionalized polymers comprise at least one amine and can comprise one or more additional amines or other reactive or polar groups. Where the functional group is a carboxylic acid, ester or derivative thereof, it reacts with the amine to form an amide. See col. 9, line 26 through col. 10, line 29 and col. 26, line 11 through col. 29, line 20.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to include the amide functionalized ethylene 1-butene copolymers of Emert et al as dispersant additive in the composition of Wallace et al to achieve enhanced performance in dispersancy and pour point as suggested by patentee absent a clear showing of unexpected results attributable to such a variation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kriellion A. Sanders whose telephone number is 571-272-1122. The examiner can normally be reached on Monday through Thursday 8:30am-7:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kriellion A. Sanders/

Primary Examiner, Art Unit 1796

Kriellion A. Sanders
Primary Examiner
Art Unit 1796

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